

REMARKS

Reconsideration and allowance are respectfully requested.

Claims 1-2 and 5-16 are pending in the application with claims 5-16 being new.

The specification has been amended at page 2 to replace the temperature of 100° C with the temperature of 1000° C. A person of ordinary skill in the art would have recognized this obvious error, caused by a missing 0, in the temperature above which the forging materials available are inferior to the precision casting materials available in terms of their thermo-mechanical strength, and thus, no new matter has been added.

Claims 1-2 stand rejected under 35 USC § 112, first paragraph and second paragraph.

Applicant respectfully traverses these rejections.

Claim 1 has been amended to remove the term "conventionally non-weldable". Claim 1 has also been amended to replace the term "high-temperature" with the term "highly-temperature resistant" to conform to language used in the specification. See, for instance, page 1, second paragraph and page 3, first paragraph.

Claim 1 is directed to a method for manufacturing a combustion chamber of a gas-turbine engine. It is known to manufacture combustion chamber components from certain high temperature nickel-based casting alloys, such as C263 or IN718, which have a generally high temperature resistance and are weldable by conventional methods. Because the environment of the gas-turbine combustion chamber exposes such alloys to temperatures that approach their operating temperature limit, it is desirable to manufacture gas-turbine combustion chamber components from alloys that are even more temperature resistant. These highly-temperature resistant alloys, such as C1023 (discussed at page 3, first paragraph), are more temperature resistant than the alloys such as C263 or IN718. For instance, the safe operating temperature of C1023 is more than 150° C higher than for C263 or IN718. However, these highly-temperature resistant nickel-based alloys, unlike the less temperature resistant nickel-based alloys, cannot be welded by conventional methods without cracking or degradation of the crystal structure. Claim 1 has been amended to require the casting of the individual wall

sections from a highly-temperature resistant nickel-based casting alloy to distinguish over the use of conventional nickel-based alloys such as C263 and IN718.

In view of the above, it is respectfully requested that the rejections under 35 USC § 112 be withdrawn.

Claims 1-2 stand rejected under 35 USC § 103(a) as being unpatentable over Cyb '661 in view of EP 0753704. Applicant respectfully traverses this rejection.

The Examiner states that Cyb discloses all of the limitations claimed except for indicating that the casting alloy is a nickel-based casting alloy and that it would have been obvious to have modified the invention of Cyb to include the use of a nickel-based casting alloy as disclosed in EP '704. Applicant respectfully disagrees.

As discussed in a previous response, Cyb discloses the laser welding of automotive exhaust manifolds. While the exhaust manifold is exposed to high temperatures, the manifold is not required to endure high mechanical stress and the mechanical failure of the manifold, while undesirable, is substantially less significant than the mechanical failure of a combustion chamber of a gas turbine suitable for use in an aircraft. There is no disclosure that the exhaust manifold be manufactured from a material retaining high strength at a high temperature or that the material be a nickel-based alloy, highly-temperature resistant or not.

EP '704 is disclosed and discussed in the present specification at page 1, first paragraph through page 2, second paragraph. While it teaches the use of a nickel-based alloy in the manufacture of a combustion chamber, it is very explicit in stating that a combustion chamber of a nickel based alloy should be cast and not welded because the welding decreases the strength of the combustion chamber. See, page 3, lines 27-30:

Further, in order to prevent the strength of welding portions from lowering, it is necessary to make a cylindrical member without welding. In order to solve this, the cylindrical member is manufactured by centrifugal casting or lost wax precision casting. By casting it, the cylindrical member which has no large grain size and no welding portion can be attained. (emphasis added)

See also, page 4, lines 37-44:

In the present invention, a combustor cylindrical liner and a transition piece are made of Fe base alloy, Ni base alloy or Co base alloy. By forming them by casting, high strength is attained, further, since the cylindrical liner body has no welding portion, a strength decrease at the welding portion can be prevented. Since in the gas turbine combustor, the combustion gas temperature has been raised, exceeding 1300° C, and becoming 1400° C, further 1500° C, the combustor itself has been raised in temperature according to the elevation of the combustion gas temperature. Therefore, material of higher strength at a higher temperature is desired, the material is possible to provide a structure having no welding portion in the barrel portion . . . (emphasis added)

As is apparent from the citations above, EP '704 specifically discloses that the combustion chamber should be cast and not welded because welding the nickel-based alloy will reduce its strength. This fact is discussed in the Background section of the present specification. Thus, this reference teaches away from the welding of a nickel-based alloy combustion chamber and is in direct conflict with the Examiner's rejection. A person of ordinary skill in the art presented with Cyb and EP '704 not only wouldn't find claim 1 obvious, he or she would be taught that such a method should not be done.

In view of the above, neither Cyb nor EP '704, alone or in combination, anticipate or render obvious independent claim 1 and it is respectfully requested that this rejection be withdrawn.

Dependent claim 2 is allowable for the reasons given above with respect to claim 1 and for the further limitations contained therein.

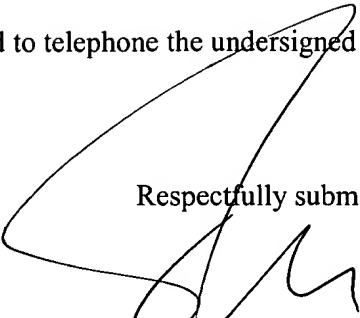
New claims 5-16 all ultimately depend from claim 1 and are directed to further aspects disclosed in the specification. No new matter has been added. These claims are allowable for the reasons given above with respect to claim 1 and for the further limitations contained therein.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance, and such a Notice earnestly solicited. If any

Appln. of: SCHREIBER
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points remain in issue, the Examiner is requested to telephone the undersigned at the number below.

Respectfully submitted,



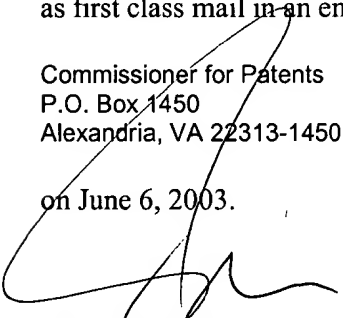
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